Facing a Middle-Ground of Symbolic Importance in Artificial Co-Creative Systems

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Abstract

Artificial intelligence systems may exist at very different levels in the artistic process. They can be considered tools that are eventually the target of curatorship, or agents that can share a path with the artist, building on it as co-creative agents. This paper promotes a discussion on the interaction with artificial systems, the relationships established with them, as well as possible directions to take in the development of a classification framework.

Introduction

Art production is often collaborative (Roberts and Wright 2004). When this happens, the artistic result is loaded with intentions of all the participants. There is a path, even if by the authors considered incomplete, that begins at a certain moment and ends at another moment, being or not crystallised in a piece or a performance. Within this path, there are moments that are considered creative¹ by the authors, and the relationship the authors have can tell us a lot about the type of artwork that is born.

An artificial intelligence system can take the place of a participant in this path, through different processes. It may not be considered an author, in the classical sense of the term, due to its possible lack of reflective consciousness and all the specificities inherent to a process of recognizing something *they* did as *art*. But it may undoubtedly be an agent capable of having responsibility for the result (or parts of it) if the remaining group of participants so wishes.² An

artificial intelligence system can objectively deflect my gesture, or even act independently in the artistic process.³ We have had some examples of artistic explorations where human authors — or if we want, *authors of the initial idea of doing something* — consider themselves co-authors with generative systems. Two examples for this are the performances *Memories of Stravinsky*, by Sholomo Dubnov improvising alongside an artificial musical agent trained on the *Rite of Spring*; and Revive (Kıvanç et al. 2018) where three electronic musicians perform alongside musical and visual agents. Both are designed to give the artificial systems an equal position to the human performers in terms of responsibility.

Co-Creative Path

The way we treat entities⁴ that share with us a co-creative context, is necessarily informed by our own definitions and conscience of relational intersubjectivity. How these definitions will be mirrored, in the relationship established by all participating entities as well as in the artistic result, depends on the freedom and importance they present to each other. This is where moments of co-creation and the contribution of the entities emerges in something greater than the sum of the parts. For human entities, even with very clear personal goals regarding how this process should be triggered, we recognise an almost always present space for personal discovery.

This subjectivation, as a *relation* to oneself (Semetsky 2003) grounds symbolic principles ranging to: how do I behave in a group, what levels of autonomy I am expecting,

¹ We recognise that the word *creative* can be controversial due to the multiple interpretations made by society. In this context, moments or things are considered *significant*.

² The fact that a system can be responsible for the artwork is, here, linked to indeterminism. Just as a performer may also be responsible for the artistic result when the composer tells her "do whatever you want here".

³ In this article we do not differentiate between generative systems in depth, however we recognise that artificial intelligence is not necessary for this.

⁴ For a better definition of participating agents, and due to the vast literature on computer systems that uses this term, the participants of the artistic process are here called *entities*.

and what kind of responsibility do I want to have in the process. The latter is a set of often standardized actions that are not necessarily questioned *per se*. It is something informed by an autobiographical opinion and the experience that each entity has in this process.⁵

We then propose a few steps to help question and understand different co-creative practices with artificial systems:

- A co-creative path is a finite spatiotemporal continuum where more than one entity, with different roles and objectives, participates.⁶
- It is within this path that co-creation or metacreation eventually happens.
- There is a *symbolic importance* that the entities reactively attribute to things.

This *symbolic importance* is what we are proposing to define the value and meaning one participating entity gives to some action, situation or the other entities. Some types of importance can be:

- What a human entity gives to an artificial intelligence system, which can range from simple curatorship to the examples raised above, or beyond (see next section).
- What does a human entity consider of this whole process, and if this particular co-creative path is significant.
- What an entity might *consider* of some phenomenon that happened during the co-creative path.

The first is where it is decided how artificial intelligence systems will participate.⁷ The meaning that a human entity will give to the system, the way the system is put in the process, and how will it be used, defines the level of inclusion. It's up to us, both as a consequence of collaboration and as a precondition to operating generative systems, to consider the shape and size of the credit we want to have for the result, as well as any other event that happens within this path that is not our fault.

The second is very simple for us to understand. It is the value and consideration that we might give to this whole path, (e.g.) I want to do this project or not, do I feel excited with it or not, and if so, it might have more *me* in it. Yet, it is not so easy to model this in a computer. This characteristic

would require an advanced value system dealing directly with emotional attachment and regulation. See the recent work of Samsonovich (2020), Bosse et al. (2007) and Goertzel's (2011) self-referential theory of will.

The third is related to events that may occur during the process. Sometimes things that we are not expecting happen, and eventually may direct our attention. We can attach positive meaning to abstract things, or even discover different forms of expression. The whole artistic process is linked to discovery (Penha 2019) and to understand something as unique as an artwork, we must value all the specifics that appear along the way.

These are examples listed as possible applications of the term *symbolic importance* during the co-creation process. It is also important to know the limitations of the entities that do this, whether they are misinterpreted algorithms or artists with different levels of experience. Examples of misinterpretation can be:

- The attribution of subjective meaning or reflective consciousness to simple generative results made by a computational system by a human entity.
- Raising criticism not suited to the type of features the system has.⁸
- The significance that an artist with 40 years of experience gives to something is loaded with subjectivity by their life experience. The importance they give to things that are dear to them may not be within the reach of any entity other than themselves.

As mentioned, some problems of interpretation are linked to the way we perceive, as individual entities, the social behavior of an entity other than ourselves. When these are artificial, there is a tendency to anthropomorphize (Schiffer 2020). The examples raised illustrate what often happens unconsciously, sometimes difficult to identify in our own behavior. For the study of socially situated types of creativity and habit, we refer to the work of Città et al. (2019).

Different Positions in Co-Creation

The position taken in this paper is related to the social and mental interaction made between *myself* and other entities that may eventually be part of a path of co-creation. We have to take into account that the nonhuman entities found in the

⁵ The relationship between an artist's experience and the *experience* of a sophisticated computer system can eventually be explored through the study of memory (see Norman et al. 2008).

⁶ As mentioned in the introduction, for ease of understanding it is stated as the duration of an artwork or a performance, not e.g. a lifetime. In this article we do not discuss the types and degrees of objectives that entities may have.

⁷ Since no computer system at the moment has the autonomy to take this same position without someone wanting to, the thinking here is done initially from the artist to the system and not the other way around.

⁸ (e.g.) question the abstract understanding that a system has of tonal music or abstract expressionism as artistic movements, when in fact the only thing we have is a parameterised navigation in a corpus of data.

process, more or less sophisticated, are complex systems. We then raise some examples that should be considered when an artificial agent is part of the co-creative path as an entity:

- What I consider mine or someone else's is directly connected with code and data copyright, as well as my individual position in this entire process.⁹
- To consider an action of an artificial creative entity depends *on my own* interpretation of creativity. We argue that creativity is much more than just logical novelty (see Ritchie 2006).

Different mindsets are part of this whole process. Sometimes it is necessary for artists to be open to novelty, collaboration and to considering the possible contributions of an artificial entity as positive. It is from here that an interaction matrix is proposed to help understand and question the type of relationship that exists between human entities and artificial entities:

- A human entity may consider an artificial intelligence system to be a simple generative tool capable of producing results of subsequent selection.
- A human entity may consider an artificial intelligence system as an entity exactly like itself in the horizontal hierarchy formed in the co-creative path.
- A human entity may consider an artificial intelligence system completely responsible by the result and/or the possible abstract ideas it might generate in the mind of the human entity along the cocreative path.

The examples raised serve as a starting point to classify two extremes (human responsible and not responsible by something or the whole project) and the middle ground when it comes to the interaction between artificial systems and humans. There may be other types of relationships that exist in the middle of these three, or even various relationships with various systems throughout the co-creative path. The term *middle ground* is, argued here, the best starting point. It is where we consider, even if it is our idea to interact with the nonhuman entity, that to a certain degree is it also responsible for the result. Here, too, it is important to define what we are actually going to use, so we can model systems that can establish relationships with us that are not done by direct control. We also argue that for every human entity in this process, the best model of this, even if trying to seek something new, is their own.

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⁹ The use of complex systems often encompasses taking advantage of other people's work as well as training data. This is in a way analogous to the way we appropriate

references or ideas that eventually appear to us. See (Cope 2005) and the credit assigned to the results of computer systems.